

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



1  
Ag 871 Fa  
pt. 2





UNITED STATES  
DEPARTMENT OF AGRICULTURE  
LIBRARY



BOOK NUMBER

1

Wanting:  
pts. 1, 3

Ag871Fa pt. 2  
351052

# FOOD PRODUCTION ACT, 1919

---

## HEARING

BEFORE THE

## COMMITTEE ON AGRICULTURE AND FORESTRY UNITED STATES SENATE

SIXTY-FIFTH CONGRESS

SECOND SESSION

ON

## WHEAT AND BEEF CATTLE.

---

WEDNESDAY, AUGUST 28, 1918

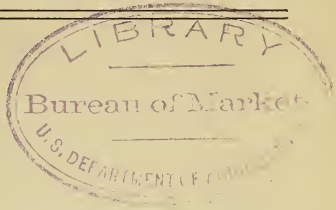
---

Printed for the use of the Committee on Agriculture and Forestry

## PART 2.



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1918



COMMITTEE ON AGRICULTURE AND FORESTRY.

THOMAS P. GORE, Oklahoma, *Chairman*.

GEORGE E. CHAMBERLAIN, Oregon.

ELLISON D. SMITH, South Carolina.

HOKE SMITH, Georgia.

MORRIS SHEPPARD, Texas.

JOSEPH E. RANDELL, Louisiana.

WILLIAM H. THOMPSON, Kansas.

EDWIN S. JOHNSON, South Dakota.

JOHN B. KENDRICK, Wyoming.

FRANCIS E. WARREN, Wyoming.

CARROLL S. PAGE, Vermont.

ASLE J. GRONNA, North Dakota.

GEORGE W. NORRIS, Nebraska.

WILLIAM S. KENYON, Iowa.

JAMES W. WADSWORTH, Jr., New York.

JOSEPH I. FRANCE, Maryland.

H. M. KAY, *Clerk*.

## FOOD PRODUCTION ACT, 1919.

---

WEDNESDAY, AUGUST 28, 1918.

UNITED STATES SENATE,  
COMMITTEE ON AGRICULTURE AND FORESTRY,  
*Washington, D. C.*

The committee met, pursuant to adjournment, at 10.30 o'clock a. m., Senator Thomas P. Gore presiding.

Present: Senators Gore (chairman), Sheppard, Kenyon, Wadsworth, and France.

Present also: Senator James D. Phelan, of California.

The CHAIRMAN. I want to say to the members of the committee that Dr. Spillman, of the Department of Agriculture, is here. I have been intending for some days to give him an opportunity to appear before the committee. Mr. Carmichael said he would take only a few minutes, and we will hear him first, as the doctor has kindly agreed to wait.

(The committee then heard the statements of witnesses on the provisions of the bill relating to the prohibition of the manufacture, etc., of intoxicating liquors, which are printed separately. Thereupon the following occurred:)

The CHAIRMAN. We will first hear Dr. Spillman. Dr. Spillman, I would like to ask if any inquiry has been made by the Department of Agriculture as to the cost of producing wheat and the cost of producing cattle in the United States?

**STATEMENT OF DR. WILLIAM J. SPILLMAN, CHIEF OF OFFICE OF  
FARM MANAGEMENT, DEPARTMENT OF AGRICULTURE.**

Dr. SPILLMAN. I will state, Mr. Chairman, that for 10 years past the office of farm management has been investigating the entire subject of cost of production on the farm, and that it has given more attention to the cost of producing wheat and beef cattle than it has to any other farm products.

The CHAIRMAN. I wish that you would, in a few words, outline the method of arriving at costs, if you have formulated a method, and then give us, as far as you can, the results of your investigation.

Dr. SPILLMAN. In the study of this subject we were confronted by the difficulty that on the great majority of American farms the farmers do not keep any records, and at first it appeared to be a very difficult task to get the facts about the cost of production on those farms. We solved that problem in a way that appears to be satisfactory, as follows:



We instituted a system of bookkeeping on 150 farms, scattered pretty well over the country. On some of those farms we have as much as nine years' continuous records, in which the farmer recorded, on blanks we furnished him, every quarter of an hour's work he did during the year and every cent that he spent or received. We have found only two important farm products that are not included in those records; one of them is sugar cane and the other is rice.

With the exception of those two crops those records showed us the items that enter into the cost of production; then it was necessary for us to learn how the farmer carries those items in his head, and to test the accuracy of the farmer's knowledge. For instance, in getting at the cost of an acre of wheat it is necessary to know the number of hours of man labor required to plow an acre of land. Now, when we go to a farmer who keeps no records and ask him that question he throws up his hands and says, "I don't know a thing about it; I never thought of that." But when we ask that same farmer in a different way we get a prompt and highly accurate reply. We ask, "Suppose you are sowing wheat after wheat and you are plowing stubble in the summer time, what kind of rig do you use?" He says, "I use a 14-inch plow and a couple of 1,200-pound horses." We ask, "How much do you plow in a day at that time of the year on wheat stubble?" He replies, "Well, sir, I can plow about an acre and five-eighths at that time of the year."

Now, that is an answer given by an expert, frequently of 40 years' experience; it is not a guess. After learning the nature of the items that enter into the cost of production—and we learn that through bookkeeping work—and after learning how the farmer carries those items in his head, we tested out the accuracy of the farmer's knowledge as he carries it in his head. In general, we found that when the questions asked call for information in the form in which the farmer carries it in his head, the degree of accuracy in the answers is very satisfactory.

The CHAIRMAN. Have you formulated a series of those questions that you submitted to the farmers?

Dr. SPILLMAN. Oh, yes.

The CHAIRMAN. I wish you would attach that to your statement.

(The questionnaire referred to is given at the end of this hearing.)

Dr. SPILLMAN. On the basis of this 10 years' work in bookkeeping we formulated blanks and provided columns for recording the information in the terms in which the farmer thinks, and then another column for calculating the information in the form in which we have to have it. After that we experimented to find how many farmers we had to get in order to obtain an average that would be reliable. In general, we have found that if we obtain two sets of 40 farms each in one community the averages of the two sets differ very little. If the number of farms is much smaller than this, the differences begin to become considerable.

There is one other great difficulty. A plow, for instance, is utilized in the production of five or six different crops on the farm; there may be 10 acres of this, 40 acres of that, and 70 acres of something else. It is no small task to apportion the cost of that plow among these various crops.

The CHAIRMAN. Or the depreciation?



Dr. SPILLMAN. Yes. The cost of the plow includes depreciation, repairs, and interest. How are you going to apportion that to all these various crops? One large Government organization in investigating the cost of production of an important agricultural product omitted all charge for the use of agricultural implements on the ground that these implements were used for other things on the same farm, and there was no way of getting at an estimate of those costs.

The CHAIRMAN. Dr. Spillman, in relation to the wheat figures that you are going to submit, did you make any allowance for weather risk?

Dr. SPILLMAN. No. As I say, this work had to be gotten out so hurriedly we did not have time to do that, Senator. The figures I shall give you here this morning make no allowance whatever for weather risk.

The CHAIRMAN. That is one of the most important factors, is it not?

Dr. SPILLMAN. It is a very highly important factor, but it is not in these figures, because we have not had time to put that in.

The CHAIRMAN. Is that the only important factor that you think of that has been left out?

Dr. SPILLMAN. I think it is; yes, sir.

The CHAIRMAN. I should be very glad, Doctor, if you would give us the results of your investigation as to wheat, upon the method you have outlined.

Dr. SPILLMAN. I will give you the results for wheat. We have a big map showing the production of wheat all over the United States, production being indicated by dots. That map, by the way, is reproduced in that little Geography of World Agriculture which we published some time ago. On that map we picked out the localities that would be representative of the wheat areas of the United States, and we got farms enough in each of these areas to give us a reliable average. The figures that I am giving you relate to the crop of 1917-18, the crop we are now beginning to eat.

The CHAIRMAN. Harvested this summer?

Dr. SPILLMAN. Harvested this summer. The figures do not include any risk the farmer takes in planting wheat, but do include everything else we know of.

First, there is a region around where the States of Colorado, Kansas, and Nebraska meet, an extensive wheat-growing region, where the methods are themselves very extensive; and we find cheaper production of wheat in that locality, when we leave the risk out of consideration, than anywhere else. But we know the risk there is greater than it is in any of these other localities, so it will probably about even up the final cost.

In that particular region the cost of the present wheat crop was \$1.60 a bushel. The average yield was 8 bushels to the acre. That is based on the cost to a renter who pays one-fourth of his crop as rent, which is the prevailing practice for that region.

Next is the State of North Dakota. We have quite ample figures from North Dakota, from five years' bookkeeping records. We have made a careful study of the increase in prices in North Dakota during that five-year period, and we applied those prices to the data that we had accumulated during the five years. The cost there for this

present crop, yielding 13 bushels to the acre on the farms studied, was \$1.81 a bushel, on a basis of one-third rent in lieu of interest on the investment, taxes, and upkeep of real estate. Those items are all included in the rent, so that no charge is made for them.

In connection with that, let me call attention to the fact that the number of hours of man and horse labor used in producing an acre of wheat in that first region I spoke of—Colorado and the corners of Nebraska and Kansas—were 5 hours of man labor and 15 hours of horse labor. The average on these North Dakota farms is 6 hours of man labor and 19 hours of horse labor, which about accounts for the difference.

Coming now to that large wheat area in southeastern Nebraska, central Kansas, and northern Oklahoma, we made a pretty big study in that region, and I think the figures we have for that region are fairly accurate. The average there is \$1.84 a bushel, with a yield of 14 bushels to the acre, with 10 hours man labor and 27½ hours horse labor per acre. That was the average on the farms we studied this year.

For the North Central States, the studies were made in Illinois, Missouri, and Indiana, but the figures are representative of a larger number of States. The cost there is \$2.26 a bushel, with a yield of 16 bushels. The man labor and horse labor per acre in that region as compared with the summer-fallow region in the West is 16.6 hours of man labor against 5 on the plains, and 34 hours of horse labor against 15 on the plains. We have the details of why that difference exists.

Now, we have some accurate records from the State of Kentucky. In that region the figures are higher, because of the higher cost of supervision. The farms are worked by negro labor, and there must be a hired manager, and that cost is reflected in the figures. The cost was \$2.50 a bushel for the present crop in Kentucky, on a yield of 14 bushels, with 18 hours of man labor and 28 hours of horse labor.

Then we have an area lying north and west of Washington City and extending north to central Pennsylvania, which is one of the large wheat districts of the East, and we have a similar area in western New York where the conditions are about the same and the costs are about the same. The average for this region here is \$2.25 a bushel, on a basis of 17 bushels per acre. This is a region where fertilizers are used largely on wheat, and where the man labor and horse labor per acre are high, amounting on the average to 15 hours of man labor and 35 hours of horse labor. That is due to the fact that somewhat smaller implements are used, and the good wheat soils here are heavier than they are in the West. The fields are also smaller.

The following is a summary of the figures for wheat:

Locality.	Cost per bushel, 1917-18 crop.	Yield.	Hours of labor per acre.		Rent share.
			Man.	Horse.	
		<i>Bushels.</i>			
Western Plains.....	\$1.60	8	5	15	One-fourth.
North Dakota.....	1.81	13	6	19	One-third.
Central Plains.....	1.84	14	10	27½	Do.
North Central States.....	2.26	16	17	34	Do.
South Central States.....	2.50	14	18	28	One-third (sup. high).
Central Atlantic.....	2.25	17	15	35	One-third (sup. mod.).

I want to call your attention to one very important consideration. Here [exhibiting a chart] is a curve; it does not apply to these exact figures, but it applies to rye in the State of New York. The average cost of producing this crop of rye on 46 farms in the State of New York was \$2.07 a bushel. This curve shows the number of farms producing rye at different costs. For instance, all of those who produced it at a cost closer to \$2 than to \$1.50 and \$2.50 were grouped at this point. Those who produced it at a cost of \$1.50 were grouped at this point, and so on. This curve shows where the large number of farms come. That line represents the average cost of production. About half of the farms are in this side of the line and half on the other side.

This line here represented 10 per cent above the average cost of production; that is, if the price of this crop of rye were fixed at \$2.28 to the farmer, then the average of these 46 farms would get 10 per cent profit, but 30 per cent of these farms would produce their rye at a loss, and 70 per cent would make some profit or come out even.

We find, in general, that in order to bring in the great body of producers of any agricultural product, to cut off only those who are inefficient and really ought to be in some other business, it is necessary that the price be 30 to 40 per cent above the average cost of production. Such prices stimulated production and do not cut off enough marginal producers to have any marked effect on production.

The CHAIRMAN. You have to do that in order to keep the men below the average in the business and going?

Dr. SPILLMAN. Yes; that is the point exactly. It is necessary to go at least 30 per cent above. With some products it is higher than it is with others.

The CHAIRMAN. If you force out those below the average, your average output per acre would be increased, but the total production would be diminished?

Dr. SPILLMAN. It would be very seriously diminished. A great many sugar factories in the early days had to dismantle and move their factories away because they did not understand that. They had fixed their prices at what appeared to be a decent profit—10 per cent or 12½ per cent above the average cost of production—and yet they were cutting off 30 to 40 per cent of their producers and compelling them to produce sugar beets at a loss.

When we showed one of those men a curve like this, based on over 1,000 sugar-beet farms, he pointed to a point about 35 per cent above the average cost of production and said: "There is where I have got to go with my price to get my acreage." He went home and adjusted his price to 35 per cent above the average cost of production and contracted all the acreage that year that his factory could handle—the first time that he had ever been able to do that. He said he had been committing suicide without knowing it.

I have a table relative to data obtained from farmers as to cost of producing wheat that I desire to place in the record.

The CHAIRMAN. The committee will be glad to print it.



(The table referred to is here printed in full, as follows:)

BLANKS USED IN OBTAINING DATA FROM FARMERS ON COST OF PRODUCING WHEAT.

UNITED STATES DEPARTMENT OF AGRICULTURE.

OFFICE OF FARM MANAGEMENT.

I. Farm organization and practice in wheat farming.

No. \_\_\_\_\_

Date \_\_\_\_\_

State \_\_\_\_\_. County \_\_\_\_\_. Township \_\_\_\_\_.

Operator \_\_\_\_\_. P. O. address \_\_\_\_\_. Location \_\_\_\_\_.

ACRES AND YIELD OF FIELD CROPS.

Crops.	Winter wheat.	Spring wheat.	Barley.	Oats.	Corn.
Acres.....					
Yield 191—.....					
High yield.....					
Low yield.....					
Estimated average yield.....					
Per cent sold.....					
Farm value 191—.....					

	Acres.	Value per acre.
In farm.....		
Cultivation.....		
Pasture.....		
Woods and waste.....		
Owned.....		
Rented for.....		
Wheat.....		
		Share, % _____.
		Cash, \$ _____.

LIVE STOCK KEPT AND RAISED ON FARM.

Kind of animals.	Work stock.	Other horses.	Colts raised.	Dairy cows.	Other cows.	Calves raised.	Heifers.	Other stock and beef cows.	Ewes.	Lambs raised.	Sows.	Pigs raised.	Poultry.	Chickens raised.	Live stock units.
Number.....															
Value.....															
Cash receipts 191—.....															

NOTES.—Description of soil \_\_\_\_\_. Surface \_\_\_\_\_. Total value of implements \_\_\_\_\_. Dwelling \_\_\_\_\_. Other buildings \_\_\_\_\_. Fences \_\_\_\_\_. Water fixtures \_\_\_\_\_. Drains \_\_\_\_\_. Value of live stock purchased 191—, \_\_\_\_\_. Value of feed purchased 191—, \_\_\_\_\_

## II. Labor in fitting seed bed and sowing grain.

[illegible]

1. Drill in standing corn between rows. 2. Drill in after cutting row crop without fitting. 3. Drill after disking or harrowing. 4. Plow, harrow, and drill.

### III. *Labor.*

## HARVESTING.

[illegible]

THRASHING.

[illegible]

## III. Labor—Continued.

## HAULING AND MARKETING.

	Grain machine to granary.	Machine to market.	Granary to market.	Total.	Notes.
Distance hauled.....					
Amount hauled.....					
Crew:					
Number of men.....					
Number of horses.....					
Loads per day.....					
Hours per acre.....					

## IV. Horse-labor charges.

Items of cost.	Quantity per horse.	Price.	Expense per item.
Grain.....	.....pounds	.....per cent	
Hay.....	.....pounds	.....per cent	
Pasture.....	.....month	.....month	
Interest.....	.....month	.....per cent	
Depreciation.....	.....month	.....per cent	
Shoeing.....	.....times	.....each	
Miscellaneous.....			
Total expense.....			
Hours per year horse work.....	.....hours		
Cost per hour.....		.....cents	

## V. Man-labor charges.

Kind of labor.	Num-ber.	Days em-ployed.	Hours per day.	Cash wages.		Board and prerequisites.		Wage per hour.
				Day.	Month.	Day.	Month.	
Regular month hands.....								
Harvest hands.....								
Threshing hands.....								
General day labor hired.....								
Operator labor.....								
Family labor unpaid.....								
Supervision.....								

## VI. Quantity and price of material per acre.

Item.	Quantity per acre.	Price.	Per cent charged to wheat.	Cost per acre.	
Seed.....					
Twine.....					
Commercial fertilizer.....					
Lime.....					
Green manure (include cost of seed fitting and planting).....					
Stable manure.....					
Chemicals.....					
Fuel.....					



VI. *Quantity and price of material per acre*—Continued.

## INSURANCE.

Kind of insurance.	Basis of charge.		Rate.	Charge per acre.	
	Bushels per acre.	Dollars per acre.			
Hail.....			<i>P. ct.</i>		
Fire.....					
Tornado.....					

## CREDITS.

Item.	Quantity.	Value per acre.
Straw.....	..... pounds per acre	.....
Pasture.....	..... acres per animal used	.....

VII. *Use of implements.*

	Num-ber.	Size.	Cost, new.	Cost to wheat, per cent, amount.	Per cent annual charge for interest, repairs, oils, depreciation.	Annual charge to wheat.
Binder.....						
Header.....						
Combine.....						
Disk harrow.....						
Sulky plow.....						
Gang plow.....						
Walking plow.....						
Mower.....						
Rake.....						
Hay loader.....						
Road wagon.....						
Low-truck wagon.....						
Barges and racks.....						
Drill.....						
Corn planter.....						
Lister.....						
Disk sled.....						
1-row cultivator.....						
2-row cultivator.....						
1-horse cultivator.....						
Harrow.....						
Roller.....						
Tractor.....						
Truck.....						
Small engine.....						
Electrical generator.....						
Elevator.....						
Fanning mill.....						
.....						
.....						
.....						
Miscellaneous tools.....						
.....						
Total.....						
Per acre.....						

VIII. *Summary blank.*

## U. S. DEPARTMENT OF AGRICULTURE.

## OFFICE OF FARM MANAGEMENT, WASHINGTON, D. C.

Cost of producing wheat:

Year \_\_\_\_\_ Farm No. \_\_\_\_\_ Value per acre, \$ \_\_\_\_\_ County \_\_\_\_\_  
 State \_\_\_\_\_ Cost per bushel, \$ \_\_\_\_\_

	Quantity per acre.	Price.	Expense per acre.	Total cost of item per acre.
Man labor.....	.....hours	\$..... per hour	\$.....	\$.....
Fit and sow.....	.....hours	\$..... per hour	.....	.....
Harvest and thrash.....	.....hours	\$..... per hour	.....	.....
Market.....	.....hours	\$..... per hour	.....	.....
Total man labor.....	.....	\$.....	.....	.....
Horse labor.....	.....hours	\$..... per hour	.....	.....
Fit and sow.....	.....hours	\$..... per hour	.....	.....
Harvest and thrash.....	.....hours	\$..... per hour	.....	.....
Market.....	.....hours	\$..... per hour	.....	.....
Total horse labor.....	.....	\$.....	.....	.....
Use of implements.....	\$.....	.....per cent	.....	.....
Thrashing charge.....	.....bushel	\$..... per bushel	.....	.....
Seed.....	.....bushel	\$..... per bushel	.....	.....
Twine.....	.....pounds	\$..... per pound	.....	.....
Commercial fertilizers.....	.....pounds	\$..... per pound	.....	.....
Lime.....	.....pounds	\$..... per pound	.....	.....
Stable manure.....	.....loads	\$..... per load	.....	.....
Insurance.....	\$.....	.....per cent	.....	.....
Supervision.....	.....hours	\$..... per hour	.....	.....
Overhead.....	\$.....	.....per cent	.....	.....
Total of all charges.....	.....	.....	.....	.....
Credits.....	.....	.....	.....	.....
Total net expense <sup>1</sup> .....	.....	.....	.....	.....
Yield.....	.....bushels	.....	.....	.....
Share for rent (rate).....	.....bushels	.....	.....	.....
Balance-share for labor and other operating expenses. <sup>1</sup>	.....bushels	.....	.....	.....

<sup>1</sup> NOTE.—Balance-share for labor and other operating expenses divided into total net expense gives cost per bushel.

Dr. SPILLMAN. That completes the statement on wheat, unless there are some other questions.

I have some figures here on the cost of producing beef cattle. I will say that these figures on beef cattle extend over a longer time. We have been making a very detailed and careful study of that subject for five years past, and the figures we have are, we believe, worthy of confidence. First, I want to show you the curve for the cost of producing a pound of gain.

People who are not familiar with the beef-feeding industry, of course, are likely to be misled when I say the cost of producing a pound of gain on beef cattle is 18.6 cents a pound for five years past, while the farmers have been selling their beef cattle at very much less than that. That does not necessarily mean that the farmers have been losing money. If a farmer buys a steer weighing 800 pounds at 12 cents a pound and sells it at 14 cents a pound later, he gets a profit of 2 cents a pound on that first 800 pounds. That is what makes the beef-cattle business possible; it would not be possible if it were not for what is called the feeding margin, which applies to the original carcass of the animal. It is supposed to balance up the loss which the farmer practically always makes on the cost of putting on gain, but it does not always do so, by any means.

The CHAIRMAN. However, he has to put on the gain in order to sell the other?

Dr. SPILLMAN. Yes; that is the point. He has to put on the gain in order to get that extra 2 cents on his first cost. That is the whole feeding game—to buy a carcass at a cheap price and convert it into something worth more per pound and make something on the original carcass. You lose money on the meat you put on; you usually lose a great deal, just about enough to balance up the account.

Here [exhibiting a chart] is the average cost of putting on gain on beef cattle—18.6 cents a pound. The height of this curve at each point represents the number of farmers who produced it at that price. There are 227 farmers in all represented here. You will notice that if you go 10 per cent above the cost, to a price of 20½ cents a pound, you let the average of these farmers make 10 per cent profit, though about 30 per cent of them would still be losing money. But if you come out here [indicating on the chart] and cut off only these fellows that are producing beef at entirely too great a cost and who ought to be out of the business, you have to go about 35 per cent above the average cost of production in order to maintain your production at an adequate level in competition with anything else that happens to be profitable.

Senator WADSWORTH. What breed of cattle do you standardize those costs on?

Dr. SPILLMAN. Those records are based on Shorthorns, Aberdeen-Angus, and Herefords.

Senator WADSWORTH. Averaging them together?

Dr. SPILLMAN. Yes.

Senator WADSWORTH. The cost would be more if you included Holsteins, would it not?

Dr. SPILLMAN. Yes; it would be.

Senator WADSWORTH. And Jerseys?

Dr. SPILLMAN. Yes. The main difficulty with Holsteins and Jerseys is that even when you put on the extra weight you do not get the extra money for them.

Senator WADSWORTH. There is a reason.

Dr. SPILLMAN. Yes; that is the reason. It is because the fat is not put in the right place. When a real beef animal gets fat you will find little strips of fat between the strips of lean meat. That is what gives the lean meat its flavor. When an animal of a strictly dairy breed, like the Holstein or Jersey, get fat the fat is largely on the entrails, around the kidneys, around the liver, and around the heart; it is not distributed in the lean meat to any considerable extent. For that reason the lean meat will not sell for as much as the lean meat from a regular beef animal.

The CHAIRMAN. It is too lean?

Dr. SPILLMAN. It is too lean; that is the trouble. Here are some figures. We have so many figures on beef cattle that I have not had time to marshal them in anything like adequate shape.

The CHAIRMAN. I would be very glad if you would insert those figures before the last edition of your statement is published.

Dr. SPILLMAN. I will insert them when you send me the records to correct.

The figures in the following table have already been published by the department in report 111, office of the Secretary. They relate to the cost of beef calves in the years 1914 and 1915.



*Cost of producing calves 6 to 8 months old in Illinois, Indiana, Minnesota, Iowa, Missouri, South Dakota, Nebraska, and Kansas.*

Group.	1914	1915	Group.	1914	1915
Beef.....	\$38.42	\$37.01	Partial milking.....	\$28.25	\$23.76
Baby beef.....	37.74	36.21	Double nursing.....	29.11	13.58
Mixed.....	34.06	27.64	Dual purpose.....	30.97	16.13

We find a great variety of costs, depending on the manner of handling the cows and their calves. In one group, where the cows were not milked at all—just handled as a beef-raising proposition—the cost in 1914 of a beef calf 8 months old was \$38.42. That is the average for a large number in Illinois, Minnesota, Iowa, Missouri, South Dakota, Nebraska, and Kansas. The next year it was \$37.01. The cost was a little less in 1915 than it was in 1914.

There was another group which were handled somewhat different. The calf was fed heavily as soon as it was weaned and run right on and sold as baby beef. Of course, his cost at weaning time did not differ materially from those I have just given you, and the figures for 1914 were \$37.74, which is 70 cents less than the figures above, and \$36.21 for 1915, which is 80 cents less than the group above.

There was a group, called the mixed group, in which some of the cows were milked and their milk was sold to a creamery. That milk was credited, so that the cost of the calf was a little less, and instead of \$38 or \$37 it is \$34.06 for 1914. In 1915 the price of milk raised very materially, and the cost of the calf dropped to \$27.64 in that group; that is simply crediting to the calf the profit on milk sold.

There was another group—partial milking—in which the farmer let the calves suck about half the milk and then he would take the other half. We called that the partial-milking group. The cost of the calf there, after crediting milk that was sold, was \$28.25 the first year and \$23.76 the second year.

There was another group—double-nursing group—in which the farmer would milk his best cows and transfer their calves to other cows, so that he would let one cow nurse two calves and milk his other cow and sell the milk. In this group the cost in 1914 was \$29.11 and the next year, when the price of milk raised, it was \$13.58. That is all that calf cost at weaning time. These calves weighed at weaning time from 300 to 450 pounds each.

Mr. LASATER. In making that statement, Dr. Spillman, are you not crediting to beef production all the products the farmer gets out of dairy production?

Dr. SPILLMAN. Absolutely.

Mr. LASATER. Then you could not feed this country on beef by those methods?

Dr. SPILLMAN. I was just coming to that. I was going to make that same statement that Mr. Lasater has made. He is absolutely right about it. There is one group known as the dual-purpose group. They are beef cows, but the calves are weaned and the cows are milked and their milk sold. In these figures here that milk is credited to the calf. In that group the first year the cost was \$31 and the second year \$16.

These methods here transfer all the profit on the milk and credit it to the calf, and that is what makes those calves appear to be

cheaper. I merely want to state that they are not cheaper, but there is some difficulty in dividing whatever profit there is in the operation—in fact, it is a profit in one case and a loss in the other—in dividing that between these two items. How much of the profit may be placed to the milk, and how much to the calf? The calf is given all of it here, and it is not fair, because, as Mr. Lasater says, the people of this country are not fed on beef produced in that way at this time.

So far as the prices here are concerned, the price of milk raised in 1915, but the price of cattle and of feed had not risen so much at that time, very little in fact. They did rise in 1916-17, however.

Mr. LASATER. May I not ask if labor conditions do not make your dual purpose group practically impossible under present conditions?

Dr. SPILLMAN. Almost. A great many dairy farmers are going out of business because they can not get labor and a great many others are putting in milking machines.

Mr. LASATER. The point I was trying to make is that there is such a small profit in that kind of dairying under present conditions that it is practically eliminated?

Dr. SPILLMAN. Oh, yes. And, so far as that is concerned, that style of dairying does not supply the country with dairy products at all.

The CHAIRMAN. A number of dairies have been closed in the vicinity of Muskogee this summer for some reason.

Dr. SPILLMAN. And it is so all over the country, because of labor difficulties, feed difficulties, and price difficulties.

Here are some figures from 188 farms in Nebraska, Iowa, and Missouri, for the fattening of beef animals during the years 1916 and 1917.

*Fattening beef animals on corn-belt farms, 1916-17.*

[Survey method; 188 farms; 9,541 2-year olds, 1,530 yearlings, 1,135 baby beeves Nebraska, Iowa, and Missouri.]

	2-year-olds.	Yearlings.	Baby beeves.	Baby beeves, 1914-1916.
Initial cost.....	\$71.94	\$51.13	\$37.78	\$36.84
Feed.....	56.73	56.05	50.45	36.47
Labor.....	3.27	3.05	3.14	2.85
Equipment.....	2.35	2.76	2.16	.87
Interest.....	3.48	3.26	2.53	2.22
Miscellaneous.....	1.10	1.38	.83	.47
Marketing.....	2.30	1.86	2.15	2.05
Gross cost.....	141.17	119.49	99.04	81.77
Credits:				
Pork.....	9.70	10.48	6.41	2.75
Manure.....	1.44	2.15	1.26	6.21
Total.....	11.14	12.63	7.67	7.96
Net cost.....	\$130.03	\$106.86	\$91.37	\$73.81
Final weight.....pounds..	1,231	1,037	798	829
Days fed.....	184	218	212	278
Daily gain.....pounds..	1.59	1.6	1.6	
Profit per head.....	\$12.32	\$8.63	\$2.05	\$2.20
Necessary margin.....	\$2.89	\$2.91	\$3.08	
Margin obtained.....	\$3.89	\$3.74	\$3.33	
Cost per pound of gain.....cents..	19.8	16.1	15.4	

<sup>1</sup> This column is for animals included in an earlier study. The figure \$36.84 in this case represents cost of raising the calves; the corresponding figures in the other columns represent purchase price on the market.

Months.

Seventy-one farms made profit; 55 farms lost money.

The figures include 9,541 2-year-old steers, 1,530 yearlings, and 1,135 baby beeves. The gross cost for a 2-year-old steer that year was \$141.17 on that group of 188 farms. It should be stated that much of the feed used by these cattle was purchased in the fall of 1916, when feed was much cheaper than it is now. There were credits for pork following the steers, and there, again, whatever is made on that pork is all credited to the steer, which is not fair, but it is a little difficult to divide the profit, because it is so often a loss, or is a profit on one part and a loss on the other. Each steer there is credited with \$9.70 worth of pork produced from his manure, and he is credited for manure \$1.44 on a feed of 184 days. The net cost per 2-year-old steer at the market was \$130.03.

The net cost of yearling steers on these same farms was \$106.86.

The CHAIRMAN (interposing). That is, on the 2-year-olds?

Dr. SPILLMAN. The first I gave was on the 2-year-old steer.

The CHAIRMAN. The average weight—you have not given that?

Dr. SPILLMAN. I have not given that. It was 1,231 pounds for the 2-year-olds, and the days fed 184; the average daily gain, 1.6 pounds; and the cost per pound of gain on those 9 000 steers was 19.8 cents.

It should be noted here that the average feeding margin on these 9,000 steers was \$3.89. This is a very unusual margin. The average margin for the preceding 10 years was \$2. During the feeding season of 1917-18 the margin was again very low and feeders generally lost money. It is to be noted also that the cost of the thin steers constitutes 51 per cent of the total cost of the fat steer.

For the year-old steers—there were 1,530 of these—the average net cost per steer was \$106.86; the final weight at market was 1,037, days on feed 218, gain per day 1.6 pounds, cost of a pound of gain on these yearling steers 16.1 cents, as compared with 19.8 cents for the 2-year-olds.

Here are the baby beeves on these same farms: Net cost at the market, \$91.37; that is what the farmer had to get at the market in order to come out even; weight, fat, 798 pounds; day on feed, 212; daily gain, 1.6; cost per pound of gain, 15.4 cents.

The CHAIRMAN. What is the point of distinction between the yearling steers and the baby beeves?

Dr. SPILLMAN. The yearling steer—the farmer buys the steer when 1 year old, in thin condition, and then gradually puts him on full feed. In about three months the steer is fed about all he is capable of digesting, after which he is fed all he will eat for a period of about three months, at which time he is sold.

In the case of the baby beef, just as soon as the calf is old enough to eat a little grain he is encouraged to eat some grain and nice juicy hay while yet nursing his dam. In that way he is made to eat every ounce that he can digest every minute of his life.

The CHAIRMAN. He pushes him all the way?

Dr. SPILLMAN. He pushes him all the way until he is about 20 months old, or sometimes 14 or 16 months and sometimes 22 months, which is about the limit. So, you see, one is pushed all his life and the other is pushed the last six months, and thus the one which is pushed all his life makes his gain somewhat earlier in life and costs a little less.



Here is one fundamental principle we find in all feeding operations: The younger the animal, the cheaper the gain.

The CHAIRMAN. The younger animal gets the benefit of the growing period?

Dr. SPILLMAN. Yes; and then after he gets through his growing period, growth means taking on fat, and it takes nearly twice as much feed to put on a pound of fat as it does to make a pound of bone and muscle.

The CHAIRMAN. On that point, I was reading some time ago the report of the Royal Commission on this very subject, and I remember they said the feed which you give an animal between 18 months and 30 months old would yield more gain in weight if fed to a younger animal.

Dr. SPILLMAN. Oh, yes; that is true.

The CHAIRMAN. And that there was really an economic waste in carrying the 30 months old, as compared to the 18 months, that you had the best profit below 18 months. That corresponds with your idea?

Dr. SPILLMAN. That is true, and our department has been recommending the farmers to fatten their beef at an early age and to turn them in not quite so fat. Here is another thing: Even if you leave out of consideration the fact that the younger the animal the more gain he will make with a given amount of feed, the fatter the animal at the same age the less gain he will make on a given amount of feed, because the fatter he gets the larger the proportion of his feed that makes fat, and it takes more feed to make a pound of fat than it does of bone or muscle.

As I explained a while ago, the farmer practically always sells his steer for less per pound than it costs him to put on the gain. It used to be a common practice in Nebraska and Kansas, when cattle were selling at 8 cents a pound fat, for a drover to hire a farmer to put fat on steers and pay him 10 cents a pound, when he knew he was only going to get 8 cents. But he had bought these cattle for 6 cents a pound, and he was figuring on selling them at 8 cents a pound, and he was going to take a profit of 2 cents a pound on all the animal weighed before he began feeding him. He would lose 2 cents a pound on the 240 pounds of gain, but he would gain 2 cents on the 800 pounds that he had before he began feeding.

The CHAIRMAN. He paid that 2 cents a pound for advertising and selling purposes?

Dr. SPILLMAN. Yes; that is, his advertising is the fat he puts on that steer. Before the recent rise in prices it was necessary that the farmers make a rise of about 2 cents a pound on the original carcass in order to come out whole in his feeding operations. I may state that in all these figures, Mr. Chairman, we are crediting the steer with all the profit made on pork that is following the steers. That should be remembered, because part of that profit does not belong to the steer; it is credited here because we have no adequate means of dividing this credit.

In the days of the old scale of prices it was necessary that the feeder have a feeding margin; that is, a rise over the price he paid for the original carcass of about 2 cents a pound in order to come out even. We have a great many figures of that kind, and the aver-

age for 15 years past is about 2 cents a pound. It happens that the farmers that were feeding during the winter of 1916-17 bought their steers on a fairly low market and happened to sell on a very high market, so the average margin for that year was higher than it has ever been in the history of the cattle business.

On one group for which we have records it was \$3.87, another \$3.74, another \$3.37; that is, the margin on which they fed that year, 1916-17. This past year, 1917-18, the conditions were reversed. The feeding margin was less and many feeders lost big money. This particular year, 1916-17, the feeders, most of them, made money; for instance, out of 132 feeders in one of these columns, 71 made a profit and only 55 lost money. This past winter those figures will be turned around and changed considerably.

In the year 1914 we made studies of the cost of producing baby beef on 26 farms in the middle Western States. The following figures give a comparison between these animals and the baby-beef animals studied in 1916-17:

	1914	1916-17
Cost of raising calves .....	\$38.27	.....
Inventory value of calves .....	.....	\$37.78
Cost of feed .....	35.11	50.45
Total cost .....	79.58	99.04

It will be observed that the producer of the calf got no more for it in 1916 than he did in 1914, but the cost of feed used in fattening these animals increased 43.7 per cent. It is evident that the producers of the stocker calves that sold for \$37.78 in 1916 lost money on them, in view of the high cost of feed in that year.

Here are some very important figures, as it appears to me. These are figures obtained from ranches in the plains regions—Oklahoma and Texas, mainly.

*Ranch costs—Beef cattle.—Averages for five years, 1913-1917.*

[Wilcox Report.]

RANCHES RAISING BEEF CALVES.

No.	Location.	Cost of beef animal at various ages.		
		8 months.	20 months.	3 years.
1	Oklahoma .....	\$35.05	\$52.18	\$68.20
2	do. ....	35.47	55.00	73.77
5	Texas .....	46.97	67.04	89.32
6	do. ....	51.15	77.09	101.67
7	do. ....	48.41	.....	.....
8	do. ....	38.32	56.95	77.06
9	do. ....	46.23	65.61	.....
12	Texas, Colorado, Montana, South Dakota, Canada (25,000 cows) .....	44.03	62.63	84.58
Average .....		43.20	62.36	82.43
Average on basis of 56½ per cent increase in last 2 years (1916-17) over first 3 years (1913-1915) .....		35.00	51.00	67.00
		55.00	80.00	105.00

*Ranch costs—Beef cattle.—Averages for five years, 1913–1917—Continued.*

RANCHES BUYING AND FEEDING STEERS 1 YEAR.

No.	Location.	Purchase price.	Cost of keep.	Feed cost.	Gain.	Loss.
3	Oklahoma.....	\$42.17	\$26.33	\$12.18	.....	\$2.64
4	do.....	45.17	30.42	13.21	.....	6.98
11	Central Texas.....	40.06	16.01	2.76	.....	7.97
10	Southern Texas (near border).....	30.22	9.62	1.39	\$13.87	.....

Eight of these ranches make a business of keeping cows and producing calves; some of them also produce 2-year-old steers and some 3-year-olds. On ranch No. 1 the figure for the cost of a calf at weaning time, 8 months, is \$35.05. For a 20-month to 2-year-old steer the cost on this ranch is \$52.18. The figure for a 3-year-old steer is \$68.20. These figures are taken from carefully kept books—the ranchers' bookkeeping records. On some of the ranches a few items are estimated, but in the main the figures on all these ranches are the results of careful bookkeeping. One other very important thing: These figures I am giving you now are averages of five years, commencing with 1913. In 1916–17 the figures are considerably higher. On one of the ranches they average  $56\frac{1}{2}$  per cent higher than they do for the three preceding years. These figures include 1912–13, 1913–14, 1914–15, and the high cost of 1915–16 and 1916–17. The costs on this particular ranch are the smallest figures we found on any ranch.

The next ranch (No. 2) is also in Oklahoma. On this ranch an 8-month-old calf cost \$35.47, a 20-month-old steer \$55, and a 3-year-old steer \$73.77.

No. 5 is a Texas ranch: Cost of an 8-month-old calf \$47, of a 20-month-old steer \$67, and of a 3-year-old steer \$89; that is one of the large ranches, producing about 5,000 calves a year, and that record is from carefully kept books.

Another Texas ranch (No. 6): An 8-month-old calf cost \$51, a 21-month-old steer \$77, and a 3-year-old steer \$102.

Another Texas ranch (No. 7): The 8-month-old calf cost \$48.41. This ranch did not produce any older steers.

Another Texas ranch (No. 8): The 8-month-old calf cost \$38.32, the 20-month-old calf \$57, and the 3-year-old steer \$77.

Another Texas ranch (No. 9): The 8-month-old calf cost \$46.23, a 20-month-old steer \$65.61; no 3-year-old steers.

Ranch No. 12 kept 25,000 cows, in the States of Texas, Colorado, Montana, and South Dakota, and in Canada. The cost of a calf at weaning time on this ranch, \$44.03, average for five years; the 20-month-old steer \$62.63, and for the 3-year-old steer \$84.58.

Notice how nearly that big ranch comes to the average of all these figures. The calf on this big ranch costs \$44.03; the average of all is \$43.20; and the other figures are just as close. The average of all the others is practically identical with the average of that big ranch.

The CHAIRMAN. It shows the persistence of averages, does it not?



Dr. SPILLMAN. You see there are enough cattle on that first ranch to make an average. The average of all these figures I have just given you are these: The calves \$43.20, for the 20-month-old steer \$62.36, and for the 3-year-old steer \$82.43.

Now, assuming that cost has increased  $56\frac{1}{2}$  per cent in the last five years, those figures would read like this: For the first three years of these figures, \$35, \$51, and \$67; for the last two years, \$55, \$80, and \$105. Those are the figures the farmer must get in order to come out even on the average, and half of the farmers will lose money at those figures.

(A VOICE IN THE AUDIENCE.) How can they build barns and houses when they lose money on steers and raising wheat?

Dr. SPILLMAN. There are several answers to that question. With corn selling at \$1.80 a bushel, the farmer makes some profit out of corn. If he feeds it to a steer and gets \$1.50 for it, he has lost 50 cents, but with the remaining \$1.30 he builds his barn.

Senator FRANCE. I ask you, Prof. Spillman, is it not true that a very large number of the present farmhouses and barns of this country were built by the farmers in the days when agriculture was much more profitable, owing to the fact that the soil fertility had not then so largely been depleted?

Dr. SPILLMAN. Yes; they were built at a time when the soil did not need the attention it does now, and when it did not cost so much per acre to produce crops.

The CHAIRMAN. The farmer computes his time and labor and the time and labor of his family into money, whether it amounts to reasonable wages or not?

Dr. SPILLMAN. I used corn as one illustration. Here is another. A farmer who is managing an \$80,000 farm should certainly value his time at \$1,000 a year. If he gets only \$400 a year he has lost \$600 worth of his time, and yet with that \$400 he builds an addition to his barn.

I have said there were many answers to the question. I have given you two of them.

Mr. LASATER. May I be permitted to ask Dr. Spillman this question? He referred to a study that was made in 1914 or 1915. That same study, I think, shows the net returns to the farmer. I would like Dr. Spillman to state those returns to this committee. I think I have met that report and that it has been issued by the Department of Agriculture.

Dr. SPILLMAN. Yes; we have that.

Mr. LASATER. And it looks to me like it is pertinent here that the committee should understand the returns to the farmer as shown by that report.

Dr. SPILLMAN. I will have to insert that in the record, because I haven't it at my fingers' ends, but it is in my records here.

The CHAIRMAN. You can insert that in your statement.

(The statement referred to was subsequently furnished by Dr. Spillman, and is here printed in full, as follows:)

*Cost and value of beef calves at weaning time.*

[Table 39, report 111, office of the Secretary.]

## CALVES INVENTORIED AT WEANING TIME.

Year.	Number of calves.	Average value.	Average cost of raising.	Gain.	Loss.
1914.....	996	\$31.93	\$35.69	.....	\$3.76
1915.....	555	36.11	33.56	\$2.55	.....
Both years.....	1,551	33.45	34.92	.....	1.47

## CALVES SOLD JANUARY 1 TO JULY 1.

Year.	Number of calves.	Average value.	Average cost of raising.	Gain.	Loss.
1914.....	206	\$44.35	\$56.09	.....	\$11.74
1915.....	26	49.75	46.25	\$3.50	.....
Both years.....	232	45.16	53.77	.....	8.61

## CALVES INVENTORIED MAY 1 (YEARLINGS).

Year.	Number of calves.	Average value.	Average cost of raising.	Gain.	Loss.
1914.....	1,692	\$38.17	\$54.69	.....	\$16.52
1915.....	2,725	37.30	51.87	.....	14.57
Both years.....	4,417	37.70	53.16	.....	15.46

*Average 5-year cost and profits in finishing a steer in four corn-belt States, 1912-1917.—Allowance made for pork produced in connection with steers.*

[From records of large feeders.]

	Illinois.	Missouri.	Kansas.	Nebraska.	Average.
Net cost of fat steer.....	\$111.67	\$88.88	\$121.23	\$112.35	\$108.53
Sales price.....	115.21	83.97	127.81	110.52	109.38
Profit.....	3.53	.....	6.58	.....	.85
Loss.....	.....	4.91	.....	1.83	.....
Margin.....	2.16	1.32	2.50	2.02	2.00
Necessary margin.....	1.87	1.79	2.01	2.17	1.96

*Cost of producing baby beef on 67 farms in Illinois, Iowa, Missouri, Nebraska, and Kansas.*

[See report 111, office of the Secretary, p. 64.]

Year.	Net cost of animal.	Net selling price.	Gain.	Loss.
1914.....	\$71.61	\$70.19	.....	\$1.42
1915.....	69.82	72.00	\$2.18	.....
Average.....	70.52	71.30	.78	.....

Dr. SPILLMAN. Referring again to the western ranches: There were four ranches that bought steers and fed them, two in Oklahoma and two in Texas. The first of these (No. 3) paid \$42.17 apiece for its steers and it cost \$26.33 a head to keep them a year. Of that cost, \$12.18 was for feed. They lost \$2.64 a head on their steers.

Another Oklahoma ranch (No. 4) produces figures about the same; the loss on this ranch was \$7 per steer. These are five-year averages.

At a ranch in central Texas (No. 11) the figures are slightly different. They paid \$40 for their steers and they spent only \$16 in keeping them a year. The feed cost was only \$2.76 a year, because they are farther south and they run their cattle on the range nearly the year around. They lost about \$8 a head on the average for the five-year period.

Ranch No. 10 is a very interesting case. If we could get all of our beef from ranches like this, we could have cheap beef. This ranch is located at the southern border of Texas. The owner buys Mexican cattle for a song, and frequently the Mexican plays the song on his mandolin. Then he pastures these cattle in southern Texas, where his total yearly expense for feed was \$1.39 per head. He buys his steers at \$30.22. This is a five-year average. His total expense of keeping a steer is \$9.62 a year, of which feed is \$1.39. He made an average profit of \$13.87 a head.

The CHAIRMAN. That must be the beef which the Willard uses. [Laughter.]

Dr. SPILLMAN. I could not tell you who eats that beef, Senator. I have other figures here, but the tenor is the same.

The CHAIRMAN. Any of those figures that you think are material and shed additional light on the subject you may add to your statement.

Dr. SPILLMAN. I will do that, Senator.

(The statements referred to by Dr. Spillman during his statement above have been inserted at appropriate places in the foregoing text.)

The CHAIRMAN. If that is all upon the subjects in hand, the committee will now consider other matters before it.

(The committee thereupon proceeded to the consideration of other business.)



